TRICHLOROETHYLENE

No Reactivity Hazard

0

Slightly Combustible

1

Moderate Health Hazard

2

Ratings based on NIOSH "Identification System for Occupationally Hazardous Materials" (1974)

Electro Chemicals Division
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Cleveland, Ohio 44114
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SEP 1 DPM 541

JAN 14 1982

Material Safety

Diamond Shamrock

GENERAL INFORMATION Trichloroethylene is a clear, colorless, nonflammable liquid with a sweet odor perceptible at concentrations below 50 ppm.

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I PRODUCT IDENTIFICATION

MANUFACTURER'S NAME DIAMOND SHAMROCK CORPORATION	REGULAR TELEPHONE NO. Contact Local Sales Office EMERGENCY TELEPHONE NO. 216-357-7070

ADDRESS
Divisional Technical Center, P.O. Box 191, Painesville, Ohio 44077

TRADE NAME
TRICHLOROETHYLENE

SYNONYMS
Ethylene Trichloride; $CHCl = CCl_2$

II HAZARDOUS INGREDIENTS

MATERIAL OR COMPONENT	%	HAZARD DATA
TRICHLOROETHYLENE	100	PEL* = 100 ppm (8-hr. TWA)
*OSHA Permissible Exposure Limit (PEL)		

III PHYSICAL DATA

BOILING POINT, 760 MM HG 87.0°C (188°F)	MELTING POINT	FREEZING POINT -86.4°C (-123.5°F)
SPECIFIC GRAVITY (H_2O=1) 1.45	VAPOR PRESSURE 73 mm Hg @ 25°C	
VAPOR DENSITY (AIR=1) 4.54	SOLUBILITY IN H_2O, % BY WT. 0.11	
% VOLATILES BY VOL. 100	EVAPORATION RATE (Ether = 1) 0.30	
APPEARANCE AND ODOR Clear, colorless liquid with a sweet odor.		
pH Not applicable		

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IV FIRE AND EXPLOSION DATA

FLASH POINT (TEST METHOD)	AUTOIGNITION TEMPERATURE
None (TCC)	410°C (770°F)

FLAMMABLE LIMITS IN AIR, % BY VOL.	LOWER	UPPER
@ 25°C (77°F)	8%	10.5%

EXTINGUISHING MEDIA

Fires involving Trichloroethylene are unlikely, but should one occur, it may be controlled by carbon dioxide, dry chemicals or water fog.

SPECIAL FIRE FIGHTING PROCEDURES

Self-contained respiratory protection should be provided for firemen fighting fires in buildings or confined areas where Trichloroethylene is stored. Storage containers exposed to fire should be kept cool with a water spray. In order to prevent pressure buildup.

UNUSUAL FIRE AND EXPLOSION HAZARD

Trichloroethylene is nonflammable and nonexplosive under normal conditions of use. Trichloroethylene decomposes to give off hydrochloric acid gas plus other toxic and irritating gases such as phosgene. If storage containers are exposed to excessive heat, overpressurization of the containers can result.

V HEALTH HAZARD INFORMATION

HEALTH HAZARD DATA OSHA Standard: Pel = 100 ppm; LDL_O = 50 mg/kg (oral - human)
TCL_O = 6900 mg/m³/10 min. (inhalation - human)

ROUTES OF EXPOSURE

INHALATION

Prolonged breathing of high concentration of Trichloroethylene vapor may cause loss of consciousness and may result in death.

SKIN CONTACT

Mildly irritating to skin. Skin contact may produce a burning sensation. Prolonged or repeated contact may cause skin to become red, rough, and dry due to the removal of natural oils and may result in dermatitis.

SKIN ABSORPTION

Not rapidly absorbed through the skin.

EYE CONTACT

Pain, lacrimation, and general inflammation of the eyes may result from exposure to Trichloroethylene liquid or high vapor concentration.

INGESTION

In industrial environments, ingestion is unlikely but, if ingested, it can irritate the gastrointestinal tract. It could produce chemical pneumonia if vomiting results in aspiration into the lungs.

EFFECTS OF OVEREXPOSURE

ACUTE OVEREXPOSURE Inhalation of vapors can cause headache, dizziness and stupor, nausea, and vomiting. Severe overexposure may cause muscular incoordination, unconsciousness, and death.

CHRONIC OVEREXPOSURE

Can cause headache, mental confusion, depression, fatigue, loss of appetite, nausea, vomiting, cough, loss of sense of balance, and visual disturbances. Prolonged or repeated skin contact may cause dermatitis.

EMERGENCY AND FIRST AID PROCEDURES **Object is to Seek Medical Attention Immediately**

EYES: Immediately flush eyes with large amounts of water for at least 15 minutes holding eyelids apart to ensure flushing of the entire eye surface. Seek medical attention immediately.

SKIN: Wash contaminated areas with soap and water. A soothing ointment may be applied to irritated skin after cleansing. Remove contaminated clothing and footwear and wash clothing before reuse. Discard footwear which cannot be decontaminated. Seek medical attention.

INHALATION:

Get person out of contaminated area to fresh air. If breathing has stopped artificial respiration should be started. Oxygen may be administered, if readily available. Seek medical attention immediately.

INGESTION:

If swallowed, DO NOT induce vomiting. If vomiting occurs spontaneously, position individual's head to keep airway clear. Never give anything by mouth to an unconscious person. Seek medical attention immediately.

NOTES TO PHYSICIAN

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VI REACTIVITY DATA

CONDITIONS CONTRIBUTING TO INSTABILITY

Under normal conditions of use Trichloroethylene is stable.

INCOMPATIBILITY

Avoid contacting Trichloroethylene with strong alkalies (such as sodium hydroxide) alkali metals, open flames, and electrical arcs. Uninhibited or lightly inhibited Trichloroethylene should not be used in contact with aluminum or zinc or their alloys.

HAZARDOUS DECOMPOSITION PRODUCTS

At high temperatures, Trichloroethylene decomposes to give off hydrogen chloride gas and small quantities of other toxic and irritating vapors, such as phosgene.

CONDITIONS CONTRIBUTING TO HAZARDOUS POLYMERIZATION

NONE

VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED

Leaks should be stopped. Spills should be cleaned up immediately. Large spills should be contained and removed by vacuum truck. Smaller spills may be soaked up with absorbent materials, which should be placed in closed containers, labeled and stored in a safe place out of doors to await proper disposal. Persons performing this work should wear adequate personal protective equipment and clothing.

NEUTRALIZING CHEMICALS

NONE

WASTE DISPOSAL METHOD

Dispose in accordance with all federal, state and local health and pollution regulations. Trichloroethylene is normally recovered from residues by distillation. Small quantities may be disposed via a licensed waste hauler. If regulations permit, wet absorbent materials may be air dried in an open isolated area. It can also be incinerated.

VIII INDUSTRIAL HYGIENE CONTROL MEASURES

VENTILATION REQUIREMENTS

Work areas employing Trichloroethylene should be isolated and contained, and provided with adequate local exhaust ventilation to maintain the air concentration of Trichloroethylene below 100 ppm (8-hour TWA) as required by OSHA.

SPECIFIC PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY (SPECIFY IN DETAIL)

Self-contained breathing apparatus (compressed oxygen should not be used in tanks or other confined spaces), positive-pressure hose mask, air-line masks, and NIOSH-approved industrial canister-type gas masks (concentration not exceeding 2% by volume use for short periods of exposure only) are acceptable.

EYE

Chemical safety goggles and plastic face shield should be worn when there is danger of splashing. Spectacle-type glasses do not provide satisfactory protection.

GLOVES

Gloves of polyvinyl alcohol or other solvent-resistant materials should be worn to minimize skin contact.

OTHER CLOTHING AND EQUIPMENT

Hard hats, chemical-resistant safety shoes, and plastic apron should be worn when handling Trichloroethylene. Eye bath and safety shower should be provided in all areas in which Trichloroethylene is used and/or handled.

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IX SPECIAL PRECAUTIONS

PRECAUTIONARY STATEMENTS

WARNING!
VOLATILE SOLVENT

Causes irritation of the eyes, skin, and respiratory tract.
Prolonged breathing of vapor can cause loss of consciousness and may result in death.
DO NOT get in eyes, on skin, on clothing.
DO NOT take internally.
Avoid breathing vapors.
Use with adequate ventilation.
Employ respiratory protection when overexposed to vapors.
When handling, wear chemical splash goggles, protective clothing, and solvent-resistant gloves.
Wash thoroughly after handling.
Avoid contact with flame, hot glowing surfaces, or alkali metals to prevent decomposition resulting in toxic and irritating vapors.
Keep container tightly closed.
Store in a cool, ventilated place.

First Aid:
In case of contact,
For eyes: Immediately flush with plenty of water for at least 15 minutes, holding eyelids apart to ensure flushing of the entire eye surface. **Seek medical attention immediately.**

For skin: Wash with plenty of soap and water. A soothing ointment may be applied to irritated skin after cleansing. Remove contaminated clothing and footwear and wash clothing before reuse. Discard footwear which cannot be decontaminated. **Seek medical attention.**

Inhalation: Get person out of contaminated area to fresh air. If breathing has stopped artificial respiration should be started. Oxygen may be administered, if available. **Seek medical attention immediately.**

Ingestion: If swallowed, DO NOT induce vomiting. If vomiting occurs spontaneously, position individual's head to keep airway clear. NEVER give anything by mouth to an unconscious person. **Seek medical attention immediately.**

For Fire: Use CO_2, dry chemicals, or water fog.

Spill or Leak: Leaks should b stopped. Spills should be cleaned up immediately. Large spills should be contained and removed by vacuum truck. Smaller spills may be soaked up with absorbent materials, which should be placed in closed containers, labeled, and stored in a safe place out of doors to await proper disposal. Persons performing this work should wear adequate personal protective equipment and clothing.

For Industrial Use Only

OTHER HANDLING AND STORAGE REQUIREMENTS

Under normal conditions, Trichloroethylene may be stored satisfactorily in galvanized iron, black iron or steel. Aluminum is not generally recommended for storage or handling. Store drums in a cool place, bung up and closed tightly. Ventilation should be provided. Do not store in pits, depressions, basements or unventilated areas. All tanks should have a top and bottom manhole and a vent of a diameter at least equal to that of the fill or discharge pipe. Vent indoor tanks outside in a location such that escaping vapor will not contaminate any work space air. Vertical tanks should be of the closed top design. Normally, a dryer and safety seal on the vent is recommended.

DEPARTMENT OF TRANSPORTATION INFORMATION
PROPER SHIPPING NAME: Trichloroethylene*
HAZARD CLASS: ORM-A*

*Regulated Only for Air Transportation

PREPARED BY: DIAMOND SHAMROCK CORPORATION
Technical Service Group

DATE: April 1, 1980